

Listing of Claims:

The following Listing of Claims is a complete listing of all claims, and replaces any prior listing made in this application.

1-9 (Cancelled)

10. (Currently Amended) A method of imaging a subject comprising the steps of administering into a subject a paramagnetic CEST agent comprising substrate molecule (SH) endowed with at least one mobile proton in exchange with bulk water bound to a paramagnetic chelate complex (SR) of a metal ion selected from iron (II) (high-spin configuration), iron (III), cobalt (II), rhodium (II), copper (II), nickel (II), cerium (III), praseodymium (III), neodymium (III), dysprosium (III), erbium (III), terbium (III), holmium (III), thulium (III), ytterbium (III) and europium (III); and imaging said subject using a CEST based MRI procedure.

11. (Previously Presented) The method of claim 10 wherein the substrate molecule (SH) is diamagnetic and is selected from linear and cyclic polyamines, polyaminoacids, proteins, polysaccharides, polyamidoamine, peramidated polyaminoacids, dendrimers containing amide groups, polycyclodextrins, polysaccharides and alginates.

12. (Currently Amended) The method of claim 11 wherein the substrate molecule (SH) is selected from polyarginine, albumin and cyclen.

13. (Currently Amended) The method ~~according to any of claims 10 to 12~~ in which the paramagnetic chelate is $[LnDOTP]^{4-}$ and the Ln metal ion is selected from the following: Ce(III), Pr(III), Nd(III), Eu(III), Tb(III), Dy(III), Ho(III), Er(III), Tm(III), Yb(III).

14. (Currently Amended) The method ~~according to any of claims from 10 to 13~~ wherein the substrate molecule (SH) and the paramagnetic chelate complex (SR) are is

compartmentalized in biocompatible systems selected from the group consisting of liposomes, nanoparticles, microemulsions and protein cavities.

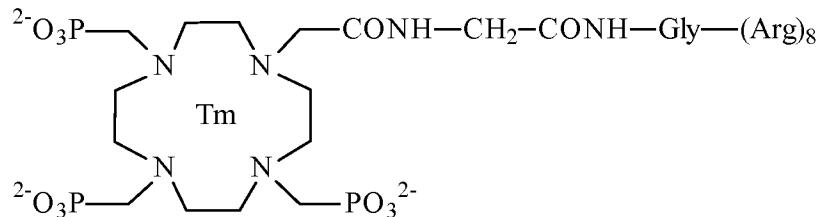
15. (Currently Amended) The method of claim 14 10 wherein the exchangeable protons belong to substrate molecule (SH) is a water molecules.

16. (Currently Amended) The method of claim 10 wherein the interaction between the substrate molecule (SH) and the paramagnetic chelate complex (SR) are bound by means of electrostatic interactions having a thermodynamic constant of association K_a greater than 10 is of electrostatic type being the apparent thermodynamic constant of SR-substrate association (K_A) being greater than 10.

17. (Previously Presented) The method of claim 10 wherein SH is covalently bound to SR.

18. (Previously Presented) A paramagnetic CEST agent comprising a substrate molecule (SH) endowed with at least one mobile proton in exchange with bulk water bound to a [LnDOTP]⁴⁻ as paramagnetic chelate complex (SR).

19. (Previously Presented) A paramagnetic CEST agent of formula:



20-21 (Cancelled).

22. (New) The paramagnetic CEST agent of claim 18 wherein the substrate molecule SH is bound to the chelate complex by means of electrostatic interactions having a thermodynamic constant of association Ka greater than 10.

23. (New) The paramagnetic CEST agent of claim 18 wherein the substrate molecule (SH) is selected from linear and cyclic polyamines, polyaminoacids, proteins, polysaccharides, polyamidoamine, permidated polyaminoacids, dendrimers containing amide groups, polycyclodextrins, polysaccharides and alginates.

24. (New) A paramagnetic CEST agent comprising a paramagnetic chelate complex (SR) of a metal ion selected from iron (II) (high-spin configuration), iron (III), cobalt (II), rhodium (II), copper (II), nickel (II), cerium (III), praseodymium (III), neodymium (III), dysprosium (III), erbium (III), terbium (III), holmium (III), thulium (III), ytterbium (III) and europium (III), bound to a substrate molecule (SH) endowed with at least one mobile proton, wherein the said SR and SH are compartmentalized in a biocompatible system selected from liposomes, nanoparticles, microemulsions and protein cavities.

25. (New) The paramagnetic CEST agent of claim 18 or 24 wherein the exchangeable protons belong to water molecules.

26. (New) A paramagnetic CEST agent comprising a paramagnetic chelate complex (SR) and water molecules, whose chemical shift is influenced by the SR unit, trapped in the same compartment and wherein, at the same time, the said water molecule are in exchange conditions with the bulk water.

27. (New) A diagnostic composition comprising the agent of any one of claims 18, 19, 24, 25 or 26 together with a suitable vehicle.

28. (New) A CEST based MRI procedure in which a paramagnetic CEST agent comprising a substrate molecule (SH) endowed with at least one mobile proton in exchange with bulk water bound to a paramagnetic chelate complex (SR) of a metal ion selected from iron (II) (high-spin configuration), iron (III), cobalt (II), rhodium (II), copper (II), nickel (II), cerium (III), praseodymium (III), neodymium (III), dysprosium (III), erbium (III), terbium (III), holmium

(III), thulium (III), ytterbium (III) and europium (III) able to increase the separation of said mobile proton(s).